CH

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,705	09/19/2001	Robert W. Griffiths	1160-3912.1U	7403

7590 10/21/2003

Joseph A Walkowski
Traskbritt
PO Box 2550
Salt Lake City, UT 84110

EXAMINER	
JACKSON, ANDRE K	

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/889,705	GRIFFITHS ET AL.	
	Examiner	Art Unit	
	André K. Jackson	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6,13,14,16,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Oota et al.

Regarding claim 1, Cohen et al. disclose a "Capacitance-type fluid level sensor for i.v. and catheter bags" which has a sensor with mutually cooperative first and second electrodes (10,12) arranged on the container in isolation from the interior of the container and having a vertical dimension and a horizontal dimension (Figures 2 and 7). Cohen et al. disclose where a majority of their areas are vertically and horizontally offset from each other in two embodiments (Figures 2 and 7). In Figure 3, Cohen shows where the electrodes are vertically offset and where a portion of the electrodes is overlapping. Cohen teaches that the electrodes are placed in an array to detect a specific liquid level (Columns 11 and 12). Oota et al. disclose in "Liquid level and

quantity measuring apparatus" where the electrodes are placed where a majority of their areas are vertically and horizontally offset (zig-zagged) from each other (Figure 1A). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cohen et al. to include where a majority of their areas are vertically and horizontally offset as taught by Oota et al. By adding this feature the artisan would be able to precisely detect the liquid level when the liquid is between two of the minor overlapping electrodes.

Regarding claim 2, Cohen et al. and Oota et al. disclose where the first and second electrodes are substantially vertically and horizontally offset from each other (Figures 2 and 7 and 1A) respectively.

Regarding claim 3, Cohen et al. and Oota et al. disclose where the first and second electrodes are completely vertically and horizontally offset from each other (Figures 2 and 7 and 1A) respectively.

Regarding claim 4, Cohen et al. and Oota et al. disclose where the first and second electrodes are vertically spaced from each other (Figures 7 and 1A) respectively.

Regarding claim 5, Cohen et al. and Oota et al. disclose where the electrodes comprise substantially two-dimensional plates (Figures 2 and 1A) respectively.

Regarding claim 6, Cohen et al. disclose where a conductor is coupled to first and second electrodes (Figure 1).

Regarding claim 13, Cohen et al. and Oota et al. disclose at least one alarm responsive to an output signal from the sensor (74) and (Column 3) respectively.

Regarding claim 14, Cohen et al. and Oota et al. disclose where the electrodes are horizontally spaced (Figures 7 and 1A) respectively.

Regarding claim 16, Cohen et al. disclose where the first and second electrodes are placed on a wall of the container (Figure 1).

Regarding claim 17, Cohen et al. disclose a mounting structure can be used to affix the first and second electrodes (Column 2).

Regarding claim 20, Cohen et al. disclose where the electrodes are placed within the wall of the container (Column 4, lines 66-67 and column 5, line 1).

3. Claims 7,8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Oota et al. as applied to claim 1 above Larson.

Regarding claim 7, Cohen et al. does not disclose where the conductors are connected to control circuitry. However, Larson discloses an "Apparatus for determining the liquid level in a tank" which teaches where the conductors are connected to control

circuitry (Figures 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cohen et al. to include where the conductors are connected to control circuitry as taught by Larson. By adding the circuitry the user would be able to regulate the frequency of the circuitry for measuring the amount of fluid in the container.

Regarding claim 8, it is considered a design choice and well within the purview of the skilled artisan to include a "ZIF" connector. Various connectors can be substituted to increase the signal and decrease unwanted noise in the invention.

Regarding claim 12, Cohen et al. does not disclose a control circuitry that is configured to detect a change in capacitance of the sensor. However, Larson discloses control circuitry configured to detect a change in capacitance of the sensor (Figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cohen et al. to include control circuitry configured to detect a change in capacitance of the sensor as taught by Larson. By adding this feature the artisan would be able to change the capacitance to continuously monitor fluid level.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Oota et al. as applied to claim 1 above in view of Hannan et al.

Regarding claims 9,10 and 11, Cohen et al. does not disclose where the control circuitry is configured to supply an oscillating signal having a frequency greater than 1MHz, at least 4MHz and at least 8MHz to one of the electrodes. However, Hannan et al. disclose a "Digital liquid level sensing apparatus" which has control circuitry configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes (Column 5, lines 31-34;Column7, lines 7-37;Column 9). Therefore, to modify Cohen et al. to include where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes would have been obvious to one of ordinary skill in the art at the time of invention as taught by Hannan et al. since varying the frequency near the upper range gives better results.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Oota et al. as applied to claim 1 above Jackson.

Regarding claim 18, Cohen et al. does not disclose where the mounting structure is a thin electrically insulative film. However, Jackson discloses a "Liquid level sensor and electrode assembly therefore" which teaches mounting structure is a thin electrically insulative film (Column 8, line 36). Therefore, it would have been

obvious to one of ordinary skill in the art at the time of invention to modify Cohen et al. to include where the mounting structure is a thin electrically insulative film as taught by Jackson. Adding the film makes it easier for the sensors to stay in place when attached to an i.v. bag.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Oota et al. and Jackson as applied to claim 18 above, and further in view of Paglione.

Regarding claim 19, neither Cohen et al., Oota et al. nor Jackson discloses where the thin electrically insulative film is Mylar. However, Paglione discloses a "Method and apparatus for detecting liquid composition and actual liquid level" which has a thin electrically insulative film is Mylar (Column 6, lines 25-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cohen et al. to include where the thin electrically insulative film is Mylar as taught by Paglione since mylar is flexible and ideal to use with flexible containers.

7. Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. in view of Oota et al. and Hannan et al.

Regarding claim 21, Cohen et al. disclose a sensor with first and second electrodes arranged on the wall of the container in isolation from the interior of the container and having a vertical

dimension and a horizontal dimension, where a majority of their areas are vertically and horizontally offset from each other (10,12 Figures 2 and 7). Cohen et al. disclose where a majority of their areas are vertically and horizontally offset from each other in two embodiments (Figures 2 and 7). In Figure 3, Cohen shows where the electrodes are vertically offset and where a portion of the electrodes is overlapping. Cohen et al. teaches that the electrodes are placed in that array to detect a specific liquid level (Columns 11 and 12). Oota et al. disclose where the electrodes are placed where a majority of their areas are vertically and horizontally offset (zig-zagged) from each other (Figure 1A). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cohen to include where a majority of their areas are vertically and horizontally offset as taught by Oota et al. By adding this feature the artisan would be able to precisely detect the liquid level when the fluid is in between two minor overlapping electrodes. Cohen et al. does not disclose where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes. However, Hannan et al. disclose where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes (Column 5, lines 31-34;Column7, lines 7-37;Column 9).

Therefore, to modify Cohen et al. to include where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes would have been obvious to one of ordinary skill in the art at the time of invention as taught by Hannan et al. since varying the frequency near the upper range gives better results. Cohen et al. disclose adjusting a fluid level within the container (Column 11, line 15).

Regarding claim 22, Cohen et al. disclose where the electrodes are placed within the wall of the container (Column 4, lines 66-67 and column 5, line 1).

Regarding claims 23 and 24, Cohen et al. does not disclose where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes. However, Hannan et al. disclose where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes (Column 5, lines 31-34;Column7, lines 7-37;Column 9). Therefore, to modify Cohen et al. to include where the control circuitry is configured to supply a signal having a frequency greater than 1MHz, at least 4 MHz and at least 8MHz to one of the electrodes would have been obvious to one of ordinary skill in the

art at the time of invention as taught by Hannan et al. since varying the frequency near the upper range gives better results.

Regarding claim 25, Cohen et al. disclose where the first and second electrodes are placed on a wall of the container with adhesive (Column 2, line 59).

Regarding claim 26, Cohen et al. disclose forming the capacitive structure on the wall (Figure 1).

Regarding claims 27 and 28, Cohen et al. disclose where the output signal exceeds a reference signal and an alarm is initiated once the output signal exceeds the reference signal (Column 5, lines16-28).

Regarding claim 29, Cohen et al. disclose where the alarm is a visual alarm (Column 2).

Response to Arguments

8. Applicant's arguments with respect to claims 1-14 and 16,17,20-29 have been considered but are moot in view of the new grounds of rejection.

Regarding claim 18, Applicants argue that Jackson does not teach a thin insulative film mounting structure for the electrodes. Jackson discloses where a thin insulative film is placed on the container at the location where the electrodes would be attached. At that point that film becomes a mounting structure since it has to

adhere to the container and support the electrodes from falling off of the container.

Regarding claim 19, Applicants argue that since Cohen et al. and Jackson both disclose electrodes on the exterior of the container that the combination of Paglione with the references would not be allowed since Paglione employs electrodes disposed within a tank. Cohen et al. disclose in Figure 12 that the electrodes can be placed within a container. Therefore, it would be well within the purview of the skilled artisan to combine the references.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (703) 305-1522. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A.J.
October 16, 2003

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800